

10/517791

Beacon Number
Sampling Interval
Instruction Information

10

Average Speed = $\sqrt{}$
(or traveling distance)

Fig. 1

ビーコン番号
サンプリング間隔
指示情報

ビーコン

平均速度 = $\sqrt{}$
(or 移動距離)

Average Speed = $\sqrt{}$
(or traveling
distance)

ビーコン
Beacon

平均速度 = $\sqrt{}$
(or 移動距離)

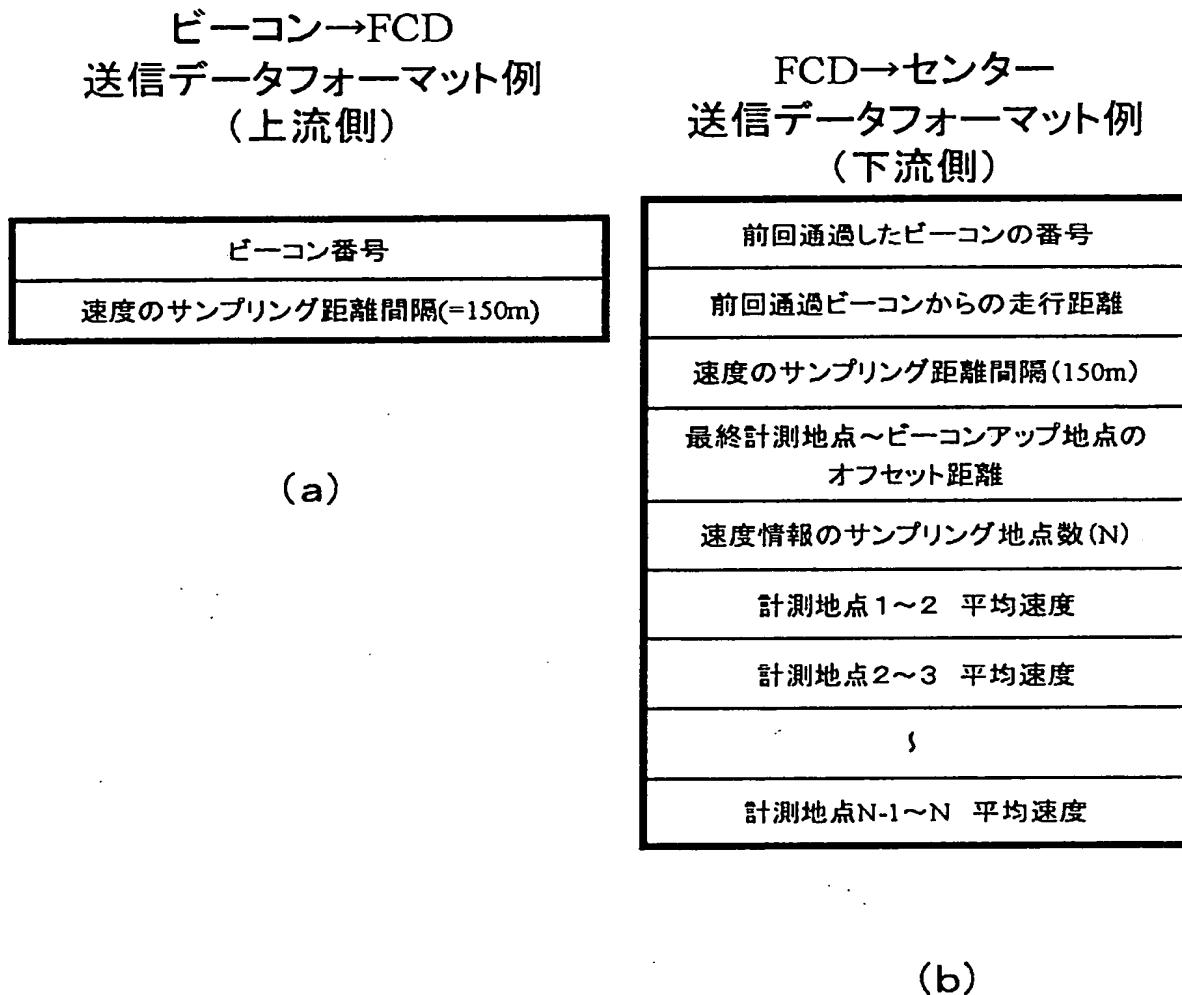
前回通過したビーコン番号
各計測地点の平均速度
(or 移動距離)

Preceding beacon number
Average Speeds (or traveling
distances) at respective
measuring points

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図 2

普通のデータコーディング送信方法



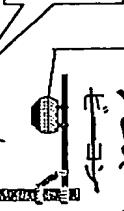
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Beacon Number
Sampling interval
Instrument information

10

Average Speed = v
(or transit time)

ビーコン番号
サンプリング間隔
指示情報



20

Beacon
ビーコン

Average Speed = v
(or transit time)

平均速度 = v
(or 通過時間)

平均速度 = v
(or 通過時間)



Fig.3

Preceding beacon number
Average speeds (or traveling
distances) at respective
measuring points

前回通過したビーコン番号
各計測地点の平均速度
(or 通過時間)

図 4

ビーコン→FCD
送信データフォーマット例
(上流側)

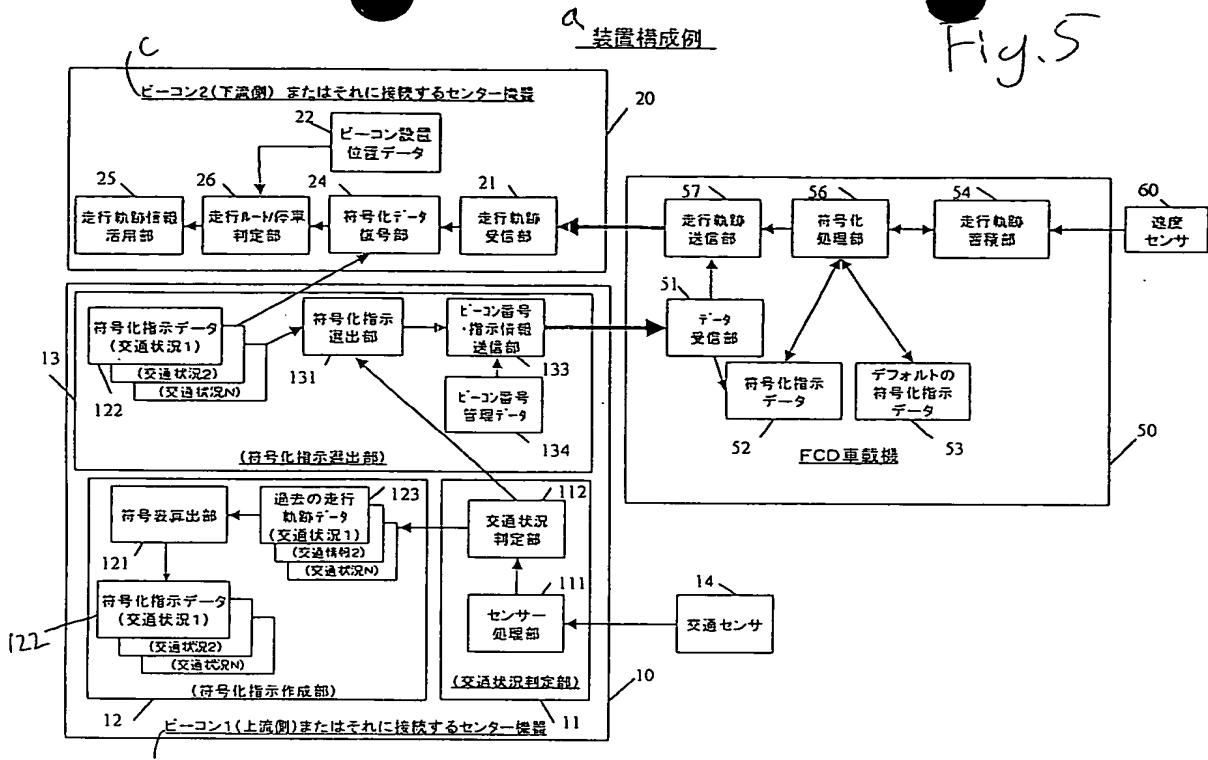
FCD→センター
送信データフォーマット例

ビーコン番号	前回通過したビーコンの番号
符号化方法の指示番号	前回通過ビーコンからの走行距離
速度のサンプリング距離間隔(=150m)	使用している符号化方法の識別番号
速度情報の量子化単位	速度のサンプリング距離間隔(150m)
速度差 ΔV の符号表	最終計測地点～ビーコンアップ地点の オフセット距離
	速度情報のサンプリング地点数(N)
	最終計測地点の絶対速度
	前ノードに対する速度差分の 符号化データ (ΔV_i , ランレンジスを符号化 したビット列)

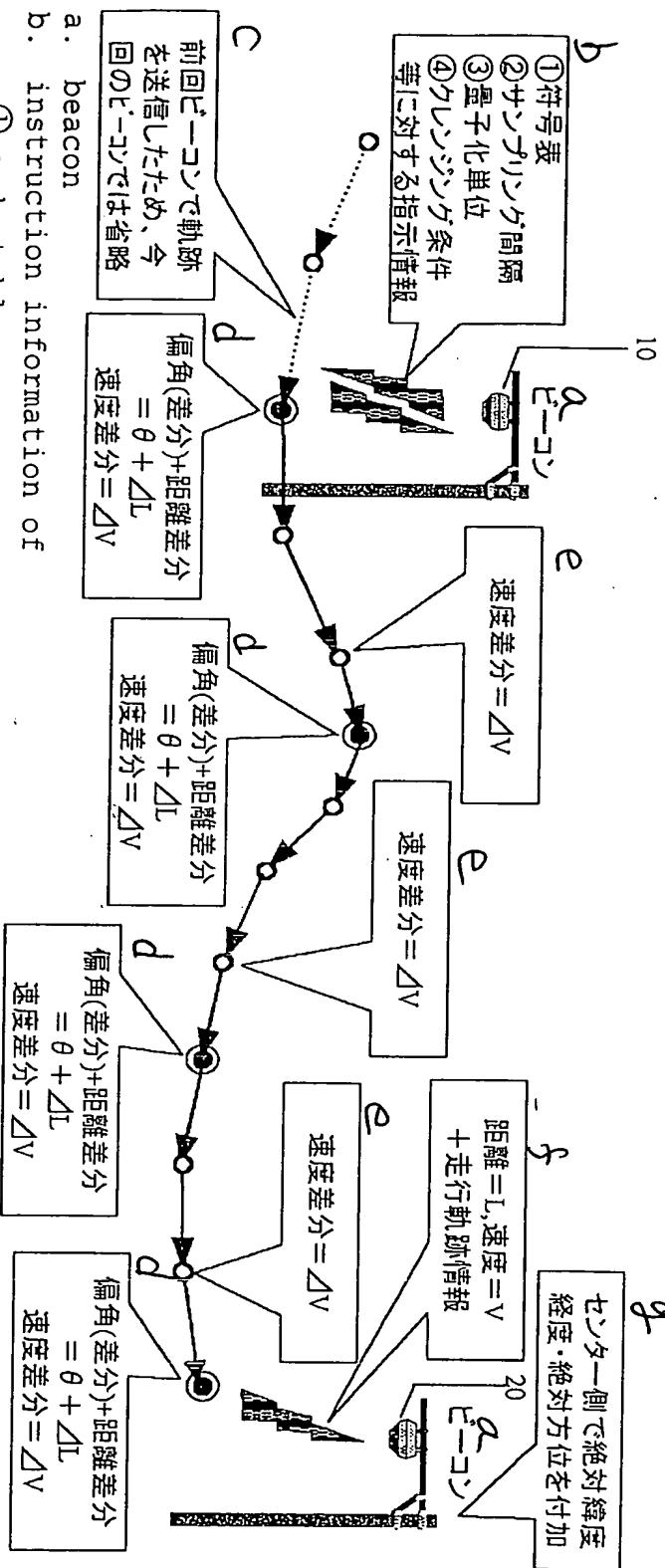
(a)

(b)

Fig. 5



- a. CONFIGURATIVE EXAMPLE OF THE SYSTEM
- b. beacon #1 (upstream side) or center equipment
 - connected thereto
 - 11. traffic condition deciding portion
 - 111. sensor processing portion
 - 112. traffic condition deciding portion
 - 12. coding instruction forming portion
 - 121. code table calculating portion
 - 122. coding instruction data (traffic condition 1)(traffic condition 2)..(traffic condition N)123. past traveling locus data (traffic condition 1)(traffic condition 2)..(traffic condition N)
 - 13. coding instruction selecting portion
 - 131. coding instruction selecting portion
 - 133. beacon number/coding instruction transmitting portion
 - 134. beacon number management data
 - 14. traffic sensor
- c. beacon #2 (downstream side) or center equipment
 - 20 connected thereto
 - 21. traveling locus receiving portion
 - 22. beacon arranging position data
 - 24. coding data decoding portion
 - 25. traveling locus information utilizing portion
 - 26. traveling route/stop deciding portion
 - 50. FCD in-vehicle unit
 - 51. data receiving portion
 - 52. coding instruction data
 - 53. default coding instruction data
 - 54. traveling locus accumulating portion
 - 56. coding processing portion
 - 57. traveling locus transmitting portion
 - 60. speed sensor



- a. beacon
- b. instruction information of
 - ① code table
 - ② sampling interval
 - ③ quantization unit
 - ④ cleansing condition, etc.
- c. The transmission made by the beacon at this time is omitted since the locus has been transmitted by the preceding beacon.
- d. Argument (difference component)+distance difference component = $\theta + \Delta L$
- Speed difference component = ΔV
- e. speed difference component = ΔV
- f. Distance = L , Speed = V + traveling locus information
- g. Add the absolute latitude longitude/absolute bearing on the center equipment side

Fig. 6

図 7

ビーコン→FCD 送信データフォーマット例

符号化方法の指示番号
偏角表現か、偏角予測差分表現かの 識別フラグ(=偏角表現)
等時間サンプリングか、等距離 サンプリングかの識別フラグ、 および計測情報の指示 (=等距離サンプルで、計測情報は θ, V)
位置情報のサンプリング距離間隔(=200m)
速度情報のサンプリング距離間隔(=25m)
偏角の量子化単位(=3°)
速度情報の量子化単位
偏角 θ の符号表
速度差 ΔV の符号表

図 8

速度情報の量子化単位

量子化量	速度(km/h)
0	0
1	1
2	2
3	3
4	4
5	5~6
6	7~8
7	9~10
8	11~13
9	14~16
10	17~19
11	20~24
12	25~29
13	30~34
14	35~39
15	40~44
16	45~49
17	50~59
18	60~69
↓	

図 9

θ の符号表

(a)

θ の値 (量子化単位差)	符号	付加ビット
0	0	0
0のランレンジス8	11110	0
±1	100	1(±識別)
±2	101	1(±識別)
±3	1100	1(±識別)
		↓

(b)

△Vの符号表

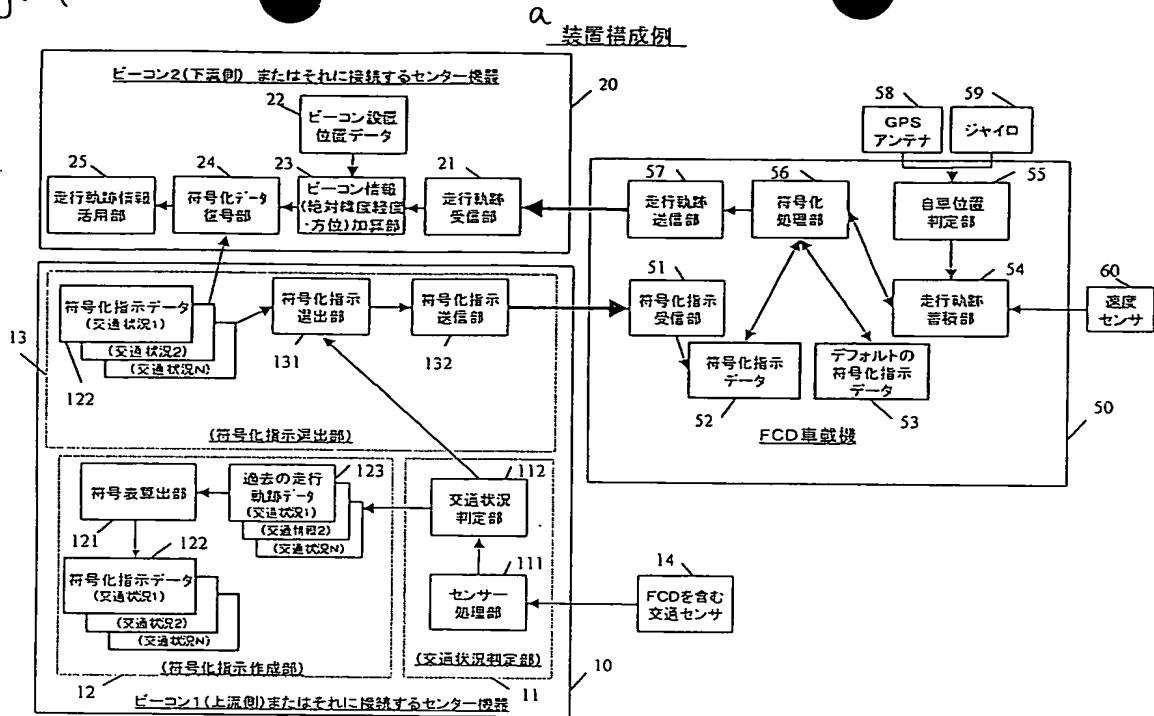
△Vの値 (量子化量差)	符号	付加ビット
0	0	0
0のランレンジス8	11110	0
±1	100	1(±識別)
±2	101	1(±識別)
±3	1100	1(±識別)
		↓

図10

FCD→ビーコン 送信データフォーマット例

車両ID情報
符号化方法の指示番号
θの計測ポイント数
前計測地点に対する偏角θの符号化データ (θを符号化したビット列)
最終計測位置の速度v
△vの計測ポイント数
前ノードに対する速度差分の符号化データ (△vを符号化したビット列)

Fig. 11



a. CONFIGURATIVE EXAMPLE OF THE SYSTEM

10. beacon #1 (upstream side) or center equipment connected thereto

11. traffic condition deciding portion
11. sensor processing portion
12. traffic condition deciding portion
12. coding instruction forming portion
121. code table calculating portion
122. coding instruction calculating portion
123. past traveling locus data (traffic condition 1) (traffic condition 2) .. (traffic condition N)
13. coding instruction selecting portion
131. coding instruction selecting portion
132. coding instruction transmitting portion
14. traffic sensor including FCD
20. beacon #2 (downstream side) or center equipment connected thereto
21. traveling locus receiving portion
22. beacon arranging position data
23. beacon information (absolute latitude longitude/bearing) adding portion
24. coding data decoding portion
25. traveling locus information utilizing portion
50. FCD in-vehicle unit
51. data receiving portion
52. coding instruction data
53. default coding instruction data
54. traveling locus accumulating portion
55. user's own vehicle position deciding portion
56. coding processing portion
57. traveling locus transmitting portion
58. GPS antenna
59. gyro
60. speed sensor

図 1 2

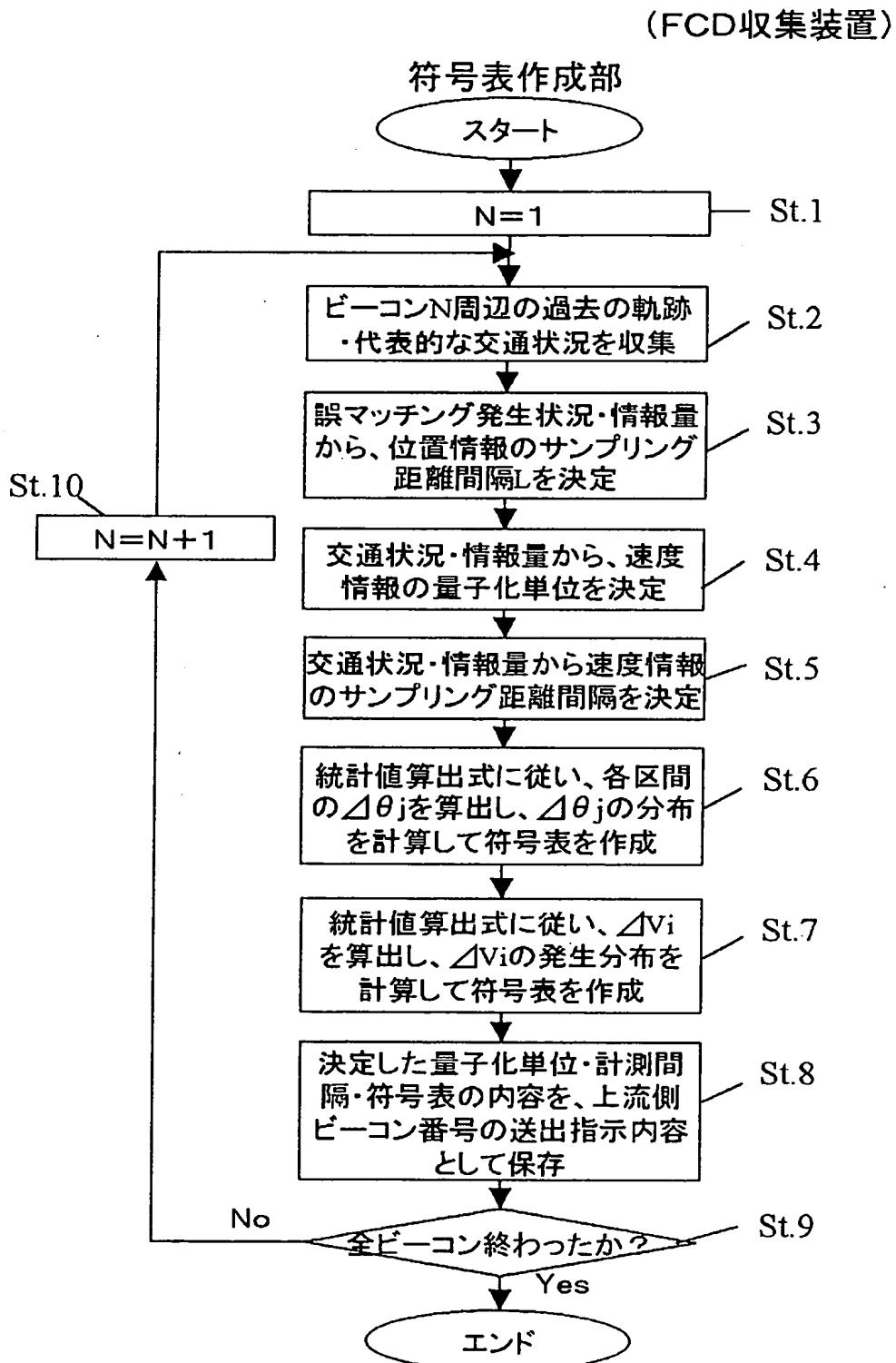


図 1 3

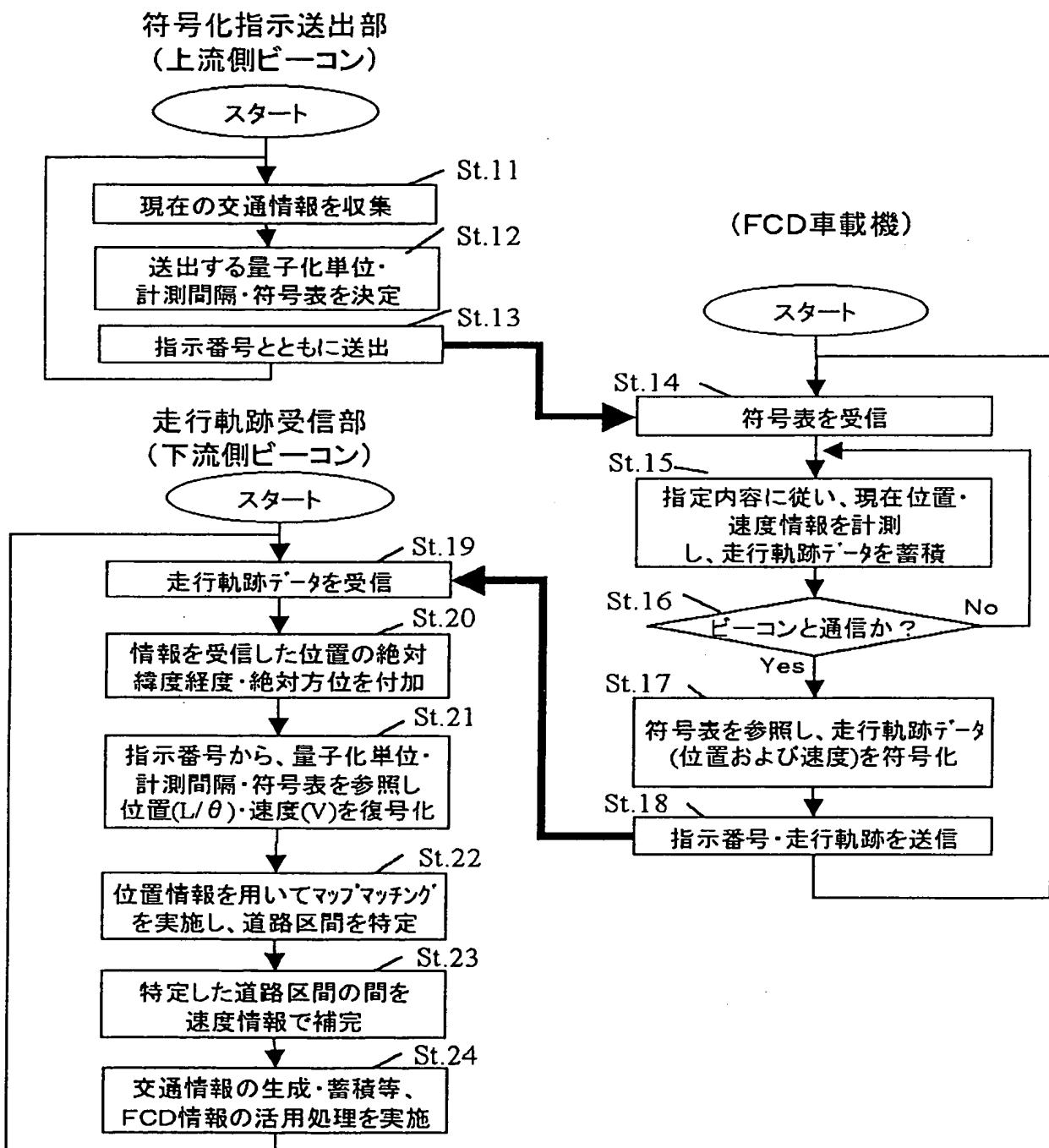
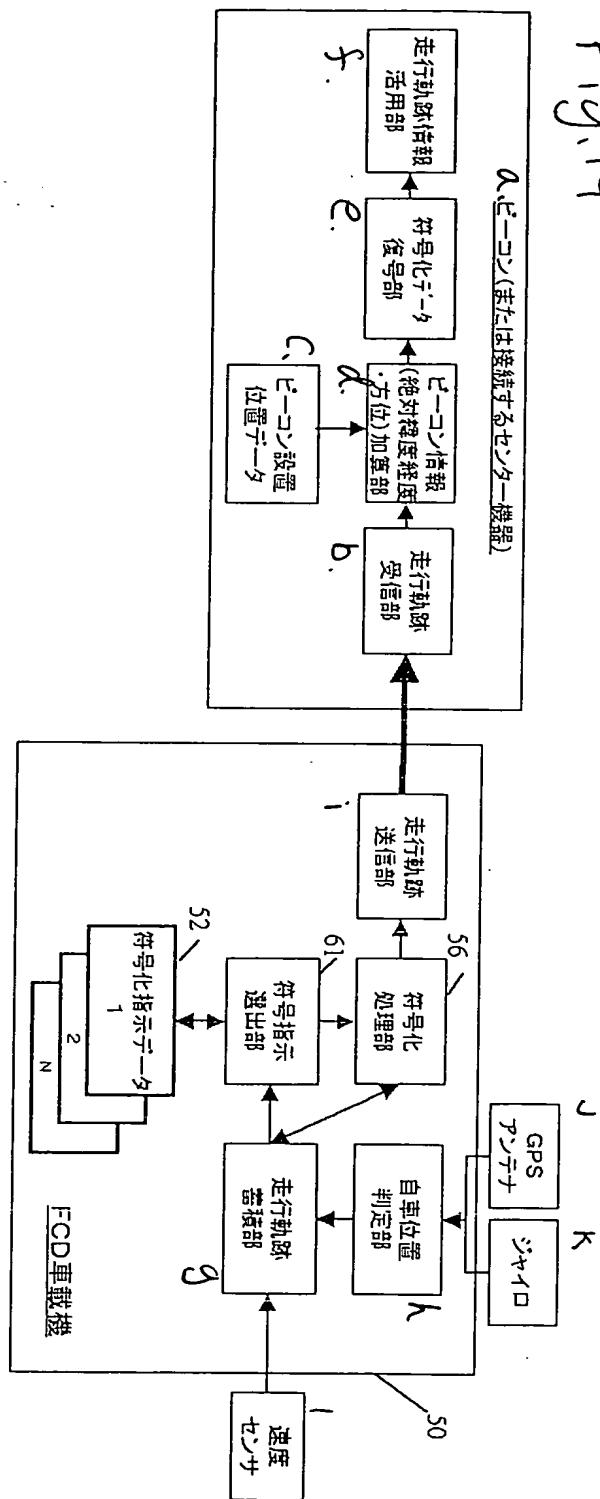
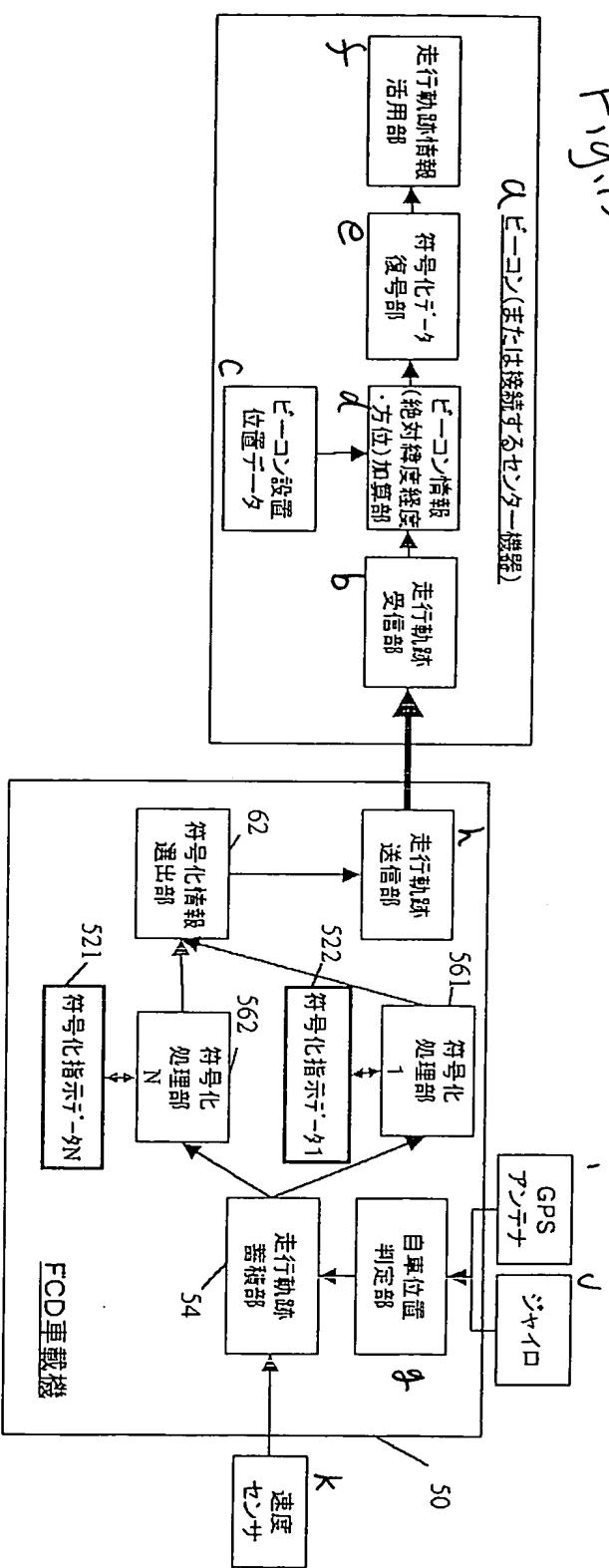


Fig.14



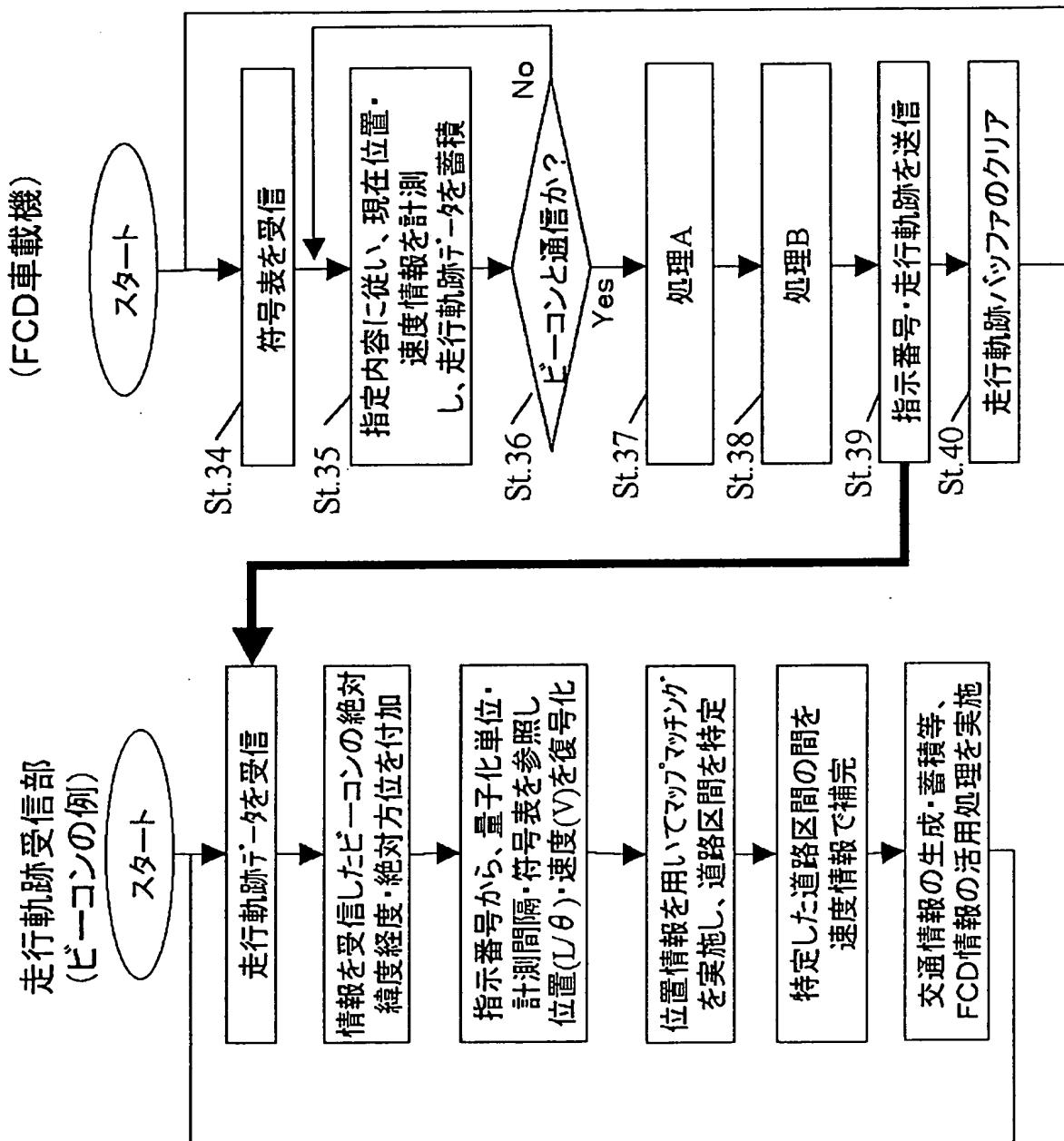
- a. beacon (or center equipment connected thereto)
- b. traveling locus receiving portion
- c. beacon arranging position data
- d. beacon information (absolute latitude longitude/bearing) adding portion
- e. coding data decoding portion
- f. traveling locus information utilizing portion
50. FCD in-vehicle unit
52. coding instruction data
- g. traveling locus accumulating portion
- h. user's own vehicle position deciding portion
56. coding processing portion
- i. traveling locus transmitting portion
61. coding instruction selecting portion
- j. GPS antenna
- k. gyro
- l. speed sensor

Fig. 15

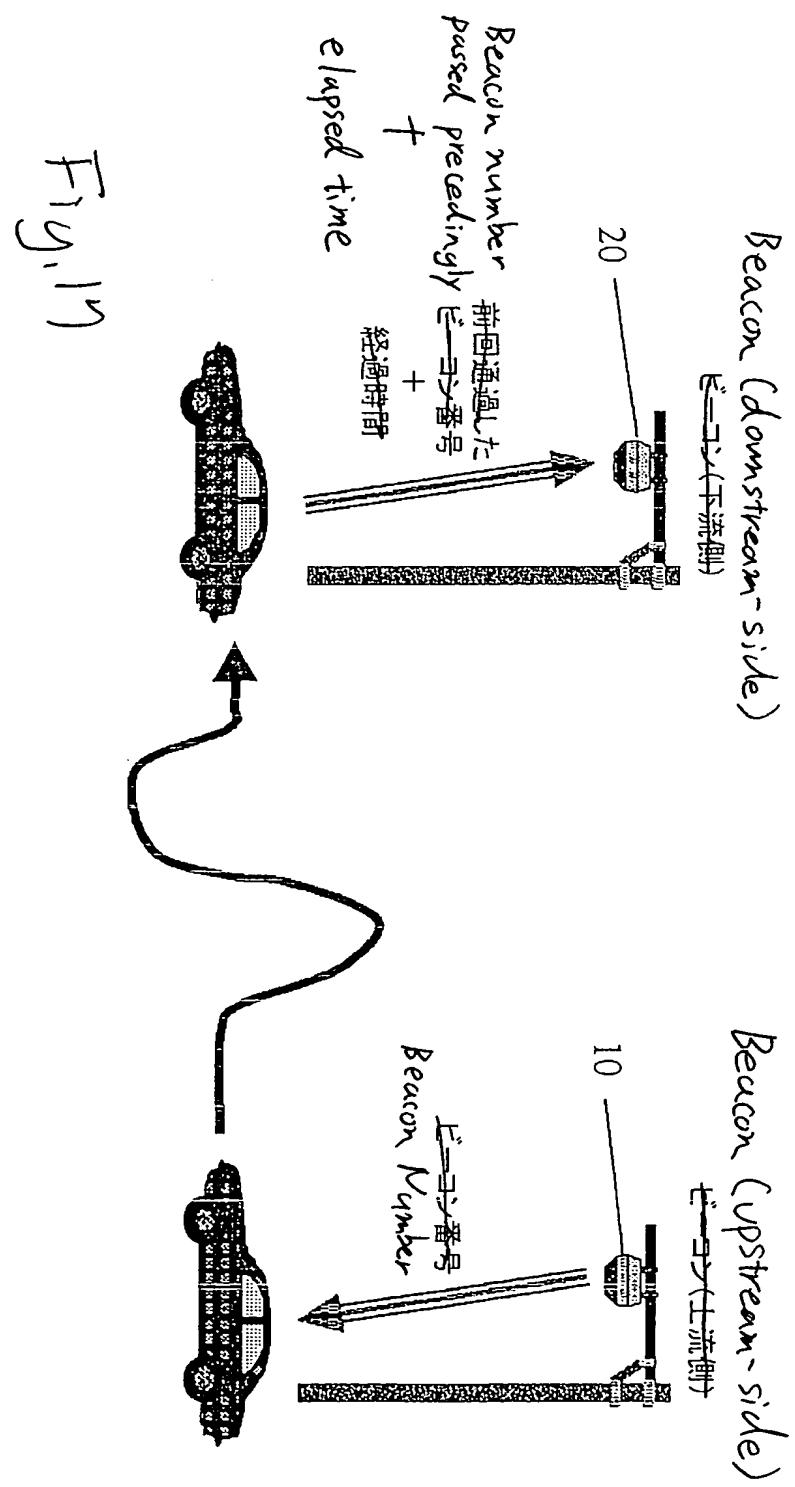


- a. beacon (or center equipment connected thereto)
- b. traveling locus receiving portion
- c. beacon arranging position data
- d. beacon information (absolute latitude longitude/bearing) adding portion
- e. coding data decoding portion
- f. traveling locus information utilizing portion
- 50. FCD in-vehicle unit
- 54. traveling locus accumulating portion
- g. user's own vehicle position deciding portion
- h. traveling locus transmitting portion
- 62. coding information selecting portion
- 521. coding instruction data N
- 522. coding instruction data 1
- 561. coding processing portion 1
- 562. coding processing portion N
- i. GPS antenna
- j. gyro
- k. speed sensor

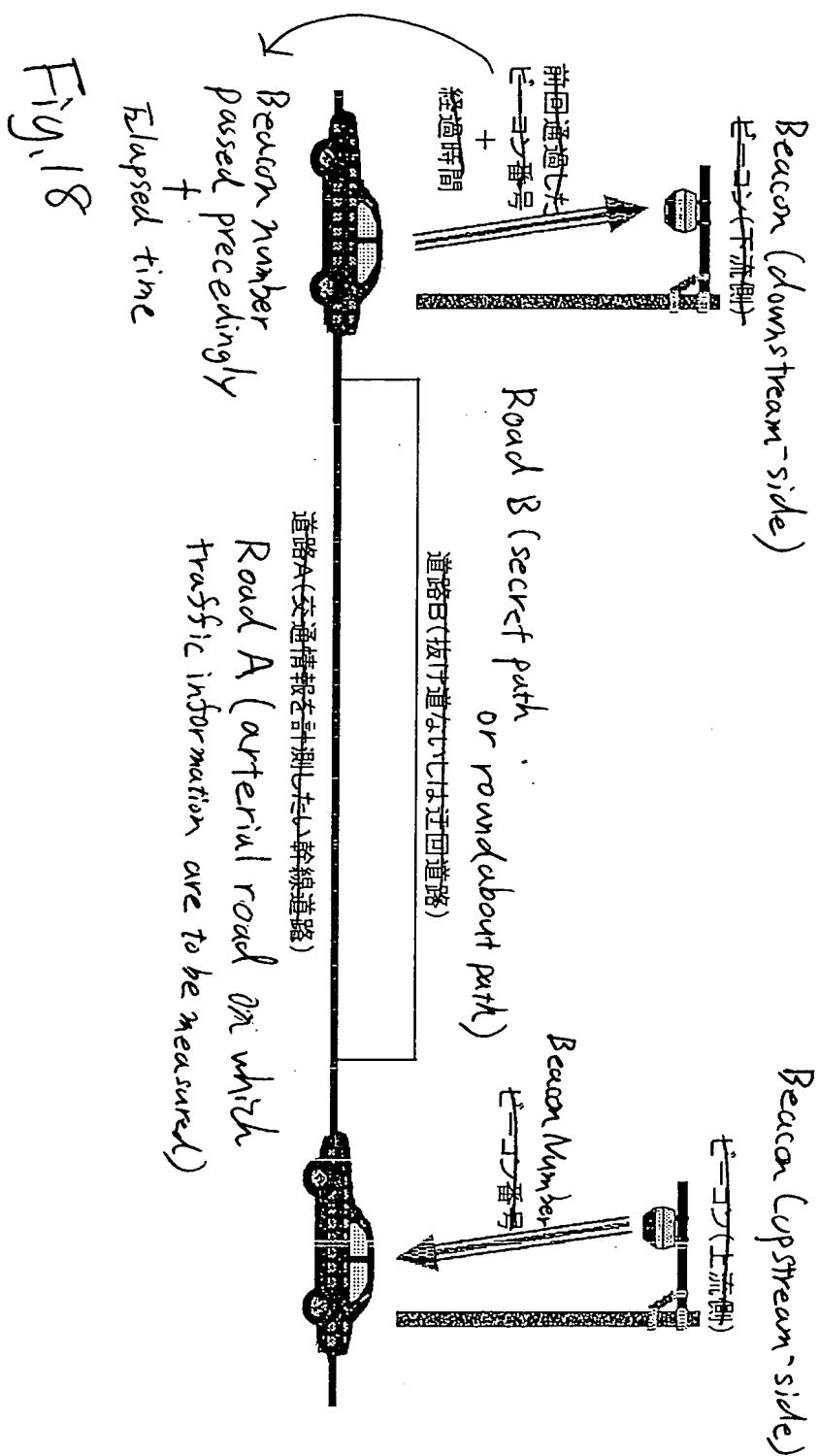
図 1 6



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